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EXAMINER

ZUCKER, PAUL A

ART UNIT

PAPER NUMBER

1621

MAIL DATE

DELIVERY MODE

06/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Current Status

1. This action is responsive to Applicants' amendments of 26 November 2008 and 6 March 2009.;
2. Receipt and entry of Applicants' amendments is acknowledged.
3. Applicant's cancellation of claims 1-41, 54 and 56 are acknowledged.
4. Claims 42-54, 55, and 57-82 are pending.
5. Claims 71-82 are held withdrawn from consideration as being drawn to a non-elected invention.
6. The objection to the specification set forth in paragraph 2 of the previous Office Action mailed 26 August 2008 is withdrawn in response to Applicant's amendment.
7. The rejections under 35 USC § 112, second paragraph, set forth in paragraphs 3 and 4 of the previous Office Action mailed 26 August 2008 are withdrawn in response to Applicant's amendment.
8. The rejection under 35 USC § 102 set forth in paragraph 5 of the previous Office Action mailed 26 August 2008 is withdrawn in response to Applicant's amendment.
9. The rejection under 35 USC § 103 set forth in paragraph 6 of the previous Office Action in Paper of the previous Office Action mailed 26 August 2008 is withdrawn in favor of the new rejection below in response to Applicant's amendment.

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New Rejections

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 42-48, 50-53, 55 and 57-70 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis et al (US 6,333,444-B1 12-2001) in view of Archibald (US 2,435,379 02-1948).

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Instantly claimed are supported catalysts comprising molybdenum, vanadium, niobium and, in some cases, gold which are produced by spray-drying support-catalyst slurries followed by calcination of the solid particle produced.

Ellis teaches (Abstract) a catalyst $\text{Mo}_a\text{W}_b\text{Au}_c\text{V}_d\text{Nb}_e\text{Y}_f$ and its use in the oxidation of ethane to acetic acid. The ranges set forth in instant claim 57 correspond to those Ellis teaches (Column 2, lines 3-35). Ellis teaches (Column 2, lines 62-64). Ellis teaches (Column 3, lines 1-2 and lines 39-43, respectively) the use of his catalyst in a fluidized bed as well as calcination of the catalyst. Ellis teaches production of his catalysts by mixing different component solutions. The temperatures and pH's of the solutions are readily optimized by the ordinary artisan in the practice of Ellis's process

The difference between the catalyst taught by Ellis and that instantly claimed is that Ellis does not teach preparation of the alumina-supported catalyst by spray-drying.

Archibald, however, teaches (Column 2, line 51-column 3, line 3) spherical alumina-supported catalyst particles for use in fluidized beds. Archibald teaches (Column 3, lines 36-65) formation of the spherical catalyst particles by the formation of gels or sols and spray-drying thereof. Archibald teaches (Column 5, line 50- column 7, line 2) the production of particles of 10-200 microns as well as up to 3000 microns which the Examiner presumes have the instantly required low BET values due to the smoothness of the particles produced (See photomicrographs). Archibald further teaches (Column 7, lines 3-40) calcination at temperatures up to 1500°F. The

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Examiner presumes that alpha alumina is produced by the process of Archibald.

Determination of the temperatures for spray drying is within the ambit of the ordinary artisan.

Thus, one of ordinary skill in the art would have been motivated to modify the process of Ellis by employing the method of Archibald to produce an alumina-supported catalyst suitable for use as a fluid bed catalyst. By doing so, a uniform, attrition-resistant catalyst could be produced. Since both disclosures are directed toward the production of catalysts, there would have been a reasonable expectation for success.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art

Examiner's Response to Applicants' Remarks With Regard to This Rejection

11. Applicants have presented several arguments with regard to this rejection. The Examiner responds to these below:

- a. Applicants argue that Ellis does not exemplify the production of supported catalysts. The Examiner agrees but points out that, as Applicants themselves admit, Ellis does teach the use of his catalyst on an alumina support.
- b. Applicants argue that the instant claims are specific to the use of alpha alumina. The Examiner responds that as alpha alumina is the most stable form he considers any, otherwise unqualified, disclosure of alumina to correspond to the alpha form.

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- c. Applicants argue that Archibald does not teach the use of the instantly claimed catalytic composition or its use in ethylene oxidation. The Examiner agrees but points out that Archibald was not relied upon for that purpose. Ellis, rather, teaches the catalyst.
- d. Applicants argue that Archibald does not suggest that inclusion of alumina in the catalyst would allow for improved oxidation. The Examiner agrees but points out that Archibald was not relied upon for that purpose. Ellis, rather, teaches the catalyst on alumina support. The advantages of supporting catalysts are well known to those of ordinary skill in the art for example less of the expensive active catalyst can be used to provide the same catalytic activity when it is coated on a support.
- e. Applicants assert that there is a surprising difference in silica and alumina supports which Ellis does not distinguish. Applicants, however, provide no support for their assertion.
- f. Applicants argue that one of ordinary skill in the art would not have been motivated to make the combination of Ellis and Archibald. The Examiner disagrees and points to the rejection of record which sets forth a clear motivation.

Applicant's arguments filed 26 November 2008 have been fully considered but they are not persuasive for the reasons set forth above.

Claim Objections

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12. Claim 49 is finally objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

.Conclusion

13. Claims 42-54, 55, and 57-82 are pending. Claims 42-48, 50-53, 55 and 57-70 are finally rejected. Claim 49 is objected to. Claims 71-82 are held withdrawn from consideration as being drawn to a non-elected invention.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 5:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul A. Zucker/
Primary Examiner, Art Unit 1621